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David Eugene Smith, professor of mathematics in Teachers' College, Columbia University, addressed the students of the State Normal School at Plattsburg, N. Y., on January 19, 1905. The subject of his lecture was the History of Mathematics. Professor Smith's recent monograph, "The Outlook for Arithmetic in America," is a valuable contribution to pedagogical literature. As a practical exposition of the author's theories, his two new arithmetics (Ginn & Co., publishers) are attracting wide attention.

BOOKS.

An Introduction to Projective Geometry and Its Applications. An Analytic and Synthetic Treatment. By Arnold Emch, Ph. D., Professor of Graphics and Mathematics in the University of Colorado. 8vo. Cloth, vii+267 pages, 114 figures. Price, $2.50. New York: John Wiley & Sons.

In contrast to the usual presentation of projective geometry in a purely systematic form with little attention given to applications, the present book treats the subject with a view to utility, considerable space being given to practical applications.

In addition to the usual subjects treated in elementary treatises, two chapters on pencils and ranges of conics, including cubics, and on applications of mechanics have been added. As an example of the power of projective geometry, the Stinerian Transformation of the Cubic, treated in Chapter IV, may be cited, and as a particular novel feature of the work, the realization of collineations by linkages, described in Chapter V, may be mentioned. A departure from fairly well established conventional notations occasionally occurs. For example, page 172, the conics whose equations are $u = 0$ and $u_1 = 0$ are referred to as the conics U and U_1. It seems to me to be better to refer to the geometric entities by their algebraic representatives, viz. u and u_1, thus avoiding the danger of taking U and U_1 to be different from u and u_1 when they are intended to be the same.

However, the whole subject as treated by the author is unusually clear and well adapted to the needs of the student of mathematics as well as to the practical mathematician. B. F. F.

The Foundations of the Euclidean Geometry as Viewed from the Standpoint of Kinematics. A Dissertation submitted to the Board of University Studies of the Johns Hopkins University in conformity with the requirements for the degree of Doctor of Philosophy. By I. E. Rabinovitch. 8vo. Paper Cover, 116 pages. Published by the author.

The first thirty-seven pages of this thesis is devoted to a resumé and comparison of the researches of the various noted mathematicians who have considered the subject of Non-Euclidean Geometry. The remaining part of the thesis is devoted to the investigations of the Foundations of Geometry from the kinematical standpoint. This thesis is certainly a very valuable contribution to the science of mathematics. B. F. F.

The Elements of Analytical Geometry. By Percy F. Smith, Ph. D., Professor of Mathematics in the Scheffield Scientific School of Yale University, and Arthur S. Gale, Ph. D., Instructor in Mathematics in Yale College. 8vo. Cloth, xii+424 pages. Price, $2.00. Boston and Chicago: Ginn & Co.

A glance at the table of contents of this volume will show that a number of topics not usually found in elementary treatises are here discussed, some of which are the invariant properties of the equation of the second degree and Inversion. The whole subject is admirably treated. B. F. F.